We claim:

1. Passive physiological monitoring apparatus comprising at least one sensor for sensing data by placing the at least one sensor on a body, a converter communicating with the at least one sensor for converting sensed data into signals, a computing device communicating with the converter for receiving and computing the voltage signals and for outputting computed data, and instrumentation communicating with the computing device for real-time interaction with the device and for display of the computed data.

2. The apparatus of claim 1, wherein the at least one sensor is a piezoelectric film.

3. The apparatus of claim 2, wherein the film is a polymer for measuring data sensed from the body and converting data into voltage measurements.

4. The apparatus of claim 2, wherein the polymer is polyvinylidene fluoride (PVDF).

5. The apparatus of claim 1, further comprising at least one band-pass filter for filtering out noise and isolating the signals to reflect data from the body.

6. The apparatus of claim 4, further comprising a pre-amplifier for pre-amplifying signals.

7. The apparatus of claim 1, wherein the data sensed is selected from a group consisting of mechanical, thermal and acoustic signals.

8. The apparatus of claim 7, wherein the signals include

cardiac output, cardiac function, internal bleeding, respiratory, pulse, apnea, temperature signals and combinations thereof.

9. The apparatus of claim 4, further comprising a pad incorporating the PVDF film.

10. The apparatus of claim 9, wherein the pad is a fluid-filled interface for facilitating transmittal of physiological signals.

11. The apparatus of claim 10, wherein the fluid is a non-reactive substance selected from a group consisting of gel, water, air, foam, rubber, and plastic or combinations thereof.

12. The apparatus of claim 9, wherein the pad is a formed as a solid or semi-solid pad.

13. The apparatus of claim 4, wherein the film measures acoustic and electro-mechanical time series data and converts mechanical energy into voltage measurements.

14. The apparatus of claim 6, wherein the signals are analog signals being fed through the band-pass filter and the amplifier.

15. The apparatus of claim 14, further comprising an analog-to-digital converter for converting the analog signals to digital signals.

16. The apparatus of claim 15, further comprising a frequency Fourier transform for transforming data into frequency domain.

17. The apparatus of claim 16, further comprising a microcomputer for recording, analyzing and displaying data for

on-line assessment of data and for providing realtime response.

18. The apparatus of claim 4, wherein the film is positioned under the body at various locations.

19. The apparatus of claim 4, wherein the film is positioned on the body as a wrapped cuff.

20. The apparatus of claim 4, further comprising a co-axial cable connected to the film.

21. The apparatus of claim 20, further comprising a radio-frequency filter connecting the cable and the film for transferring signals from the film through the cable.

22. The apparatus of claim 21, further comprising a high-input impedance amplifier connected to the cable for receiving the signals.

23. The apparatus of claim 22, wherein the amplifier is connected to the computing device for processing the signals received from the amplifier.

24. The apparatus of claim 23, further comprising an oscilloscope and a chart recorder connected to the computing device for displaying output from the device.

25. The apparatus of claim 4, wherein the at least one sensor comprises plural sensors.

26. The apparatus of claim 25, wherein the plural sensors consist of pairs of sensors for sensing signals from the body and for separately sensing ambient noise.

27. The apparatus of claim 1, wherein the at least one sensor is provided on a substrate.

28. The apparatus of claim 1, wherein the substrate is selected from a group consisting of clothes, stretchers, beds, MEDEVAC litters, cervical collars, body armor, body protection gear, uniforms, extraction devices, exercise equipment, furniture, cushions, seats and seatbacks.

29. The apparatus of claim 1, wherein the at least one sensor is a miniaturized portable field device with a wireless communication setup.

30. The apparatus of claim 25, wherein the plural sensors measure pulse-wave velocity at plural locations on the body.

31. The apparatus of claim 25, wherein the plural sensors measure pulse-wave travel time at plural locations on the body.

32. The apparatus of claim 1, wherein the at least one sensor is an array of sensors distributed over different locations for measuring and monitoring signals of the body.

33. The apparatus of claim 32, further comprising a MEDEVAC litter incorporating the array of sensors for measuring acoustic and hydraulic signals from the body of a patient on the litter and from surrounding areas.

34. The apparatus of claim 33, wherein the signals comprise physiological signals from the body and environmental noise.

35. The apparatus of claim 4, further comprising ceramics, hydrophones, microphones and pressure transducers.

36. The apparatus of claim 1, wherein the monitoring is selected from a group consisting of field monitoring, hospital monitoring, transport monitoring, home, remote monitoring and

combinations thereof.

37. Passive physiological monitoring method comprising placing a sensor on a body, sensing physiological data from the body with the sensor, converting the data with a converter into signals, isolating the signals from the body from ambient signals, computing the isolated signals, outputting computed data, and displaying computed data on instrumentation.

38. The method of claim 37, wherein the sensing comprises sensing with a piezoelectric film.

39. The method of claim 37, further comprising filtering out noise with a band-pass filter for separating the signals from the body.

40. The method of claim 37, wherein the sensing comprises sensing mechanical, thermal and acoustic signals.

41. The method of claim 38, further comprising recording acoustic and electro-mechanical time series data and converting mechanical energy into voltage measurements with the film and using the measurements for supporting time series analysis techniques.

42. The method of claim 38, further comprising transforming the signals using a frequency Fourier transform from time into frequency domain.

43. The method of claim 42, further comprising recording, analyzing and displaying data with a microcomputer, assessing on-line data computed and providing realtime response to the data received.

44. The method of claim 37, wherein the placing the sensor comprises positioning on the body.

45. The method of claim 37, comprising measuring pulse-wave velocity at plural locations on the body with the sensor.

46. The method of claim 37, wherein the monitoring is selected from a group consisting of field monitoring, hospital monitoring, transport monitoring, home, remote monitoring and combinations thereof.